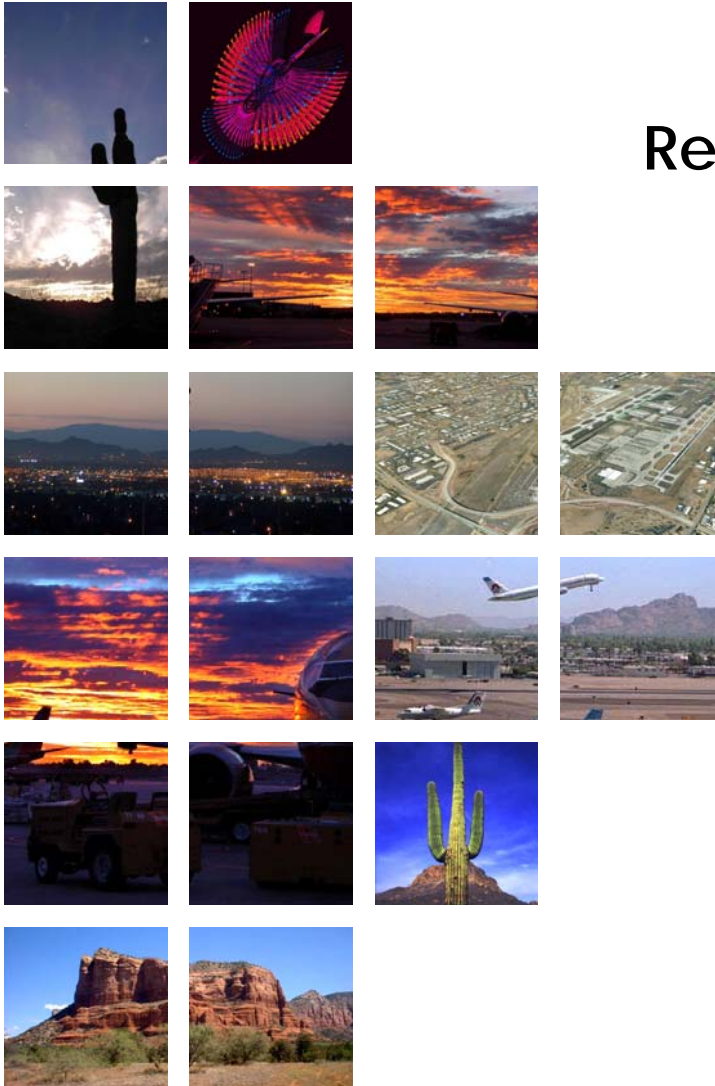


Section 3

Regulatory Environment – Environmental





Section 3 Regulatory Environment - Environmental

3.1 Introduction

The citing, design, and use of an ARFF training facility must be consistent with relevant federal, state, and local environmental regulations. In this section, applicable environmental regulations are reviewed and summarized. In addition, key environmental impact categories anticipated to be associated with a regional ARFF training facility are identified and briefly discussed.

Potential environmental impacts are categorized as related to either the construction or operation of a particular project. For the ARFF training facility proposed by Arizona Department of Transportation (ADOT), environmental concerns will involve key issues related to facility location and fuel options. In addition, the project will most likely require permits and approvals from several federal, state and local agencies.

3.2 Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) requires the FAA to address environmental issues in its decision making process. The FAA meets its NEPA requirements by determining the significance of the proposed action (e.g. this regional ARFF training facility). The determination of significance or non-significance can result in a Categorical Exclusion, an Environmental Assessment (EA) or Environmental Impact Statement (EIS).

NEPA requires the FAA to identify and mitigate the significant environmental impacts of the activity it is proposing or permitting, referred to as the “Action.” An EA describes the significance of an action's potential environmental impacts. If the FAA determines that potential significant impacts may result, the agency then decides whether to require (or prepare) an EIS. If the FAA determines that no significant impacts are likely to occur, a Finding of No Significant (FONSI) must be prepared and filed and the environmental review is complete at that point.

3.3 Construction-Related Environmental Concerns

Construction of the facility will result in both temporary and permanent impacts to the environment. Temporary construction issues may be related to the construction area, construction staging area or the transport of construction and/or demolition materials. Permanent impacts involve the irreversible commitment of land and resources for the facility. Impacts related to the construction of the facility may include the following:

- **Water Quality:** Construction activities have the potential to impact water quality by the transport of contaminated water during rain events. Section 402 of the Clean Water Act as delegated by the Arizona Pollutant Discharge Elimination System (AZPDES), governs the quality of stormwater discharged into surface waters of the United States and storm drains.
- **Well Construction:** The Arizona Department of Water Resources addresses construction standards for water- well construction in the Ground Water Management Code. A drilling permit is required for non-exempt wells in Active Management Areas.



- **Wetlands:** If the construction of the ARFF training facility involves any filling, grading, or dredging of wetland areas, a Clean Water Section 404 permit from the Army Corp of Engineers (ACOE) is required prior to commencement of any construction activity.
- **Location of Facility:** If the location and size of the facility has any potential impact on fish/wildlife, endangered species, farmlands, water bodies, parklands, or wilderness areas, the appropriate agencies must be contacted and mitigation measures addressed.

The sections below outline the various federal, state and local regulations, permits and other environmental requirements that will be addressed as part of this project. The applicability of many of these regulations can only be ascertained when certain assumptions regarding the location, design, and operation of the facility are determined.

3.4 Operations-Related Environmental Concerns

The routine operation of an ARFF Training facility will have impacts that recur with each training exercise. The impacts of routine operation of fire fighting training depends on the training methods employed to provide a realistic simulation of the conditions airport firefighters will face in extinguishing aircraft fires and rescuing air passengers.

By-products of fire simulation activities emit pollutants into the wastewater and air. Traditionally, ARFF training facilities utilized transportation fuels such as gasoline, diesel, jet fuel, or a combination of these. Traditional fuels generate thick smoke that dissipates slowly over a large area. Recently, the use of highly refined hydrocarbon-based fuels, which produce less smoke and dissipate more readily, is replacing these conventional fuels. Propane use to simulate Flammable Liquid Hydrocarbons (FLH) fires, significantly reduces environmental impact, however it provides for a less realistic aircraft fire simulation. Due to more stringent environmental regulations and expense of liquid hydrocarbon-based training facilities, most new ARFF training facilities utilize propane.

Permanent operational issues of the facility may include the following:

- **Air Quality:** Arizona Department of Environmental Quality (ADEQ) protects the quality of air in the State of Arizona by implementing the Clean Air Act's National Ambient Air Quality Standards. A comprehensive conformity determination is required if pollutant emissions exceed the minimum threshold as determined by ADEQ.
- **Water Quality:** The use of FLH and fire fighting foam during training sessions results in contaminated wastewater, which must be properly disposed. If the ARFF training facility discharges the effluent into waters of the United States an AZPDES permit is required under section 402 of the Clean Water Act (CWA). The permit will specify the constituent's levels of wastewater that can be discharged and the necessary mitigation measures. If wastewater is discharged, pretreatment may be required prior to discharge as regulated under section 403 of the CWA. FAA Executive order 11988 requires the training facility site to be located above the 100-year flood plain to decrease the potential for groundwater and soil contamination.



AC 150/5220-17A states that site approval must be granted by Federal, State, and local authorities prior to construction in order to minimize impacts to wetlands and water supply wells.

- **Land Use:** Selection of potential sites must take into consideration current adjacent land use zoning as well as address the long-term use of adjacent lands.

3.5 Key Environmental Impact Categories

The following is a brief summary of the potential impacts of key environmental categories noted previously.

3.5.1 Air Quality

Air emissions will result from fire simulations during training activities. Air emissions from the burning of propane or conventional fuels include particulate matter, carbon monoxide, volatile organic compounds, sulfur dioxide and nitrogen oxides. The use of propane instead of conventional fuel significantly decreases these emissions.

In compliance with the 1970 Clean Air Act (CAA) and the 1990 Clean Air Act Amendments (CAAA), the U.S. EPA has promulgated ambient air quality standards and regulations, enacting National Ambient Air Quality Standards (NAAQS) for the protection of public health and welfare, allowing for an adequate margin of safety.

There are two types of air quality standards: primary and secondary. Primary standards are designed to protect sensitive segments of the public from adverse health effects that may result from exposure to criteria pollutants. Secondary standards are designed to protect the environment from any known or anticipated adverse effects of a pollutant, including the effects on the natural environment (soil, water, vegetation) and the manmade environment (physical structures). Areas that do not meet the NAAQS are called non-attainment areas; areas that meet both sets of criteria are known as attainment areas.

The CAAA requires each state to demonstrate the manner in which it will attain the NAAQS in non-attainment areas and maintain the NAAQS in attainment areas in a state implementation plan (SIP). All rules for conformity of federally sponsored or approved activities should be followed in meeting NAAQS and SIP requirements. The U.S. EPA has developed criteria and procedures for determining general conformity to State or Federal Implementation Plans in EPA 40 CFR Parts 6, 51 and 93 (November 30, 1993). For determining whether an action conforms to the SIP's purpose, the proposed action shall not:

- Cause or contribute to any new violation of the standard;
- Increase the frequency or severity of any existing violation; and
- Delay timely attainment of the standards.

To ensure future conformity, General Conformity Rules sets the air pollutant emission minimum thresholds for criteria pollutants at all non-attainment and maintenance areas. If any federally



sponsored or approved action expects to generate air emissions exceeding these minimum increments, a comprehensive conformity determination and/or mitigation measures are required.

The annual emissions for ARFF facilities burning activities typically fall below the minimum threshold due to limitations placed on the number, length and duration of burning events, and therefore a comprehensive conformity determination is usually not required.

The ADEQ Office of Air Quality regulates open burning in the State. Arizona Administrative Code R18-2-602 permits open burning for the purpose of “instruction in the methods of fire fighting.” An open burn permit will likely be required for the ARFF Training Facility. These permits are issued from authorized local officers. The Open Burn Permit sets limits on the setting of fires as specified in the Arizona Guidelines for Open Burning. These guidelines limit the time and manner of setting fires, and prohibit burning during unsuitable weather conditions. These guidelines also require the notification of the local firefighting agency prior to each open burn. Maricopa, Pinal, and Pima Counties have their own pollution control programs which regulate open burning.

3.5.2 Water Quality

Wastewater generated during fire fighting training activities has the potential to impact water quality. Wastewater constituents include unburned fuel, fuel products, oils, foam, and the by-products of fuel combustion: hydrocarbons, polynuclear aromatic hydrocarbons, and carbon. Table 3.01 on the following page identifies typical characteristics of fire fighting training wastewater, based on a series of samples.

Additional sources of wastewater include stormwater during construction of the facility, fuel storage, and equipment maintenance and cleaning.

Federal, State and local regulations govern the disposal of wastewater. The Federal Water Pollution Control Act, as amended by the CWA provides the authority to establish water quality standards, control discharges into surface and subsurface water, develop waste treatment management plans, and issue permits for discharges and for dredged or fill material.

Section 402 of the CWA requires all facilities that discharge pollutants from a point source into navigable waters of the United States to obtain a National Pollution Discharge Elimination System (NPDES) permit. The State of Arizona has been delegated authority by the U.S. Environmental Protection Agency (USEPA) to operate NPDES program known as the Arizona Pollutant Discharge Elimination System (AZPDES). If the ARFF training facility discharges effluent into any body of water designated as Waters of the United States by the USEPA, an AZPDES permit is required. The permit issued by the ADEQ sets effluent limits based on technological requirements, water quality standards and other conditions.



Table 3.01
Characteristics of Fire Fighting Training Wastewater

Parameter	Units	Median	Min	Max	Number of samples Analyzed	Number of Detects
Flow	Gpd	114	114	114	1	1
BOD	mg/L	9.5	9.5	9.5	1	1
COD	mg/L	49	36	1800	3	3
Oil & Grease	mg/L	890	890	890	1	1
pH	SU	7	6.5	7.5	2	2
TPH	mg/L	1.7	1.4	2	2	2
TSS	mg/L	24	22	35	3	3
Cadmium	mg/L	0.060	0.008	0.12	2	2
Chromium	mg/L	0.04	0.04	0.04	2	1
Copper	mg/L	0.04	0.04	0.04	2	1
Lead	mg/L	0.02	0.01	0.02	2	2
Molybdenum	mg/L	0.03	0.03	0.03	2	1
Nickel	µg/L	0.05	0.05	0.05	2	1
Silver	µg/L	0.005	0.005	0.005	2	1
Zinc	µg/L	0.08	0.08	0.08	2	1
Benzene	µg/L	28.5	22	35	3	2
Toluene	µg/L	4.2	3.1	5.2	3	2

Source: Department of Defense Handbook Non-domestic Wastewater Control and Pretreatment Design Criteria (MIL-HDBK-1005/17 Oct. 30, 1998)

Water discharged into publicly owned water treatment (POWT) plants is regulated as outlined in 40 CFR 403. The pretreatment regulations enacted to prevent the discharge of pollutants to the POWT, prevent interference of the operations, prevent contamination, ensure worker safety, and prevent violation of the POWT NPDES permit.

The AZPDES regulations also govern the quality of stormwater discharged into surface waters of the United States and storm drains. Construction activities have the potential to impact water quality by the transport of contaminated water during rain events. The AZPDES rules specify permitting requirements for both large and small construction activities. A general construction permit is required for disturbed sites equal to or greater than five acres as specified by 40 CFR 122.26(b)(15).

The AZPDES general stormwater permit requires the preparation and implementation of a Stormwater Pollution Protection Plan (SWPPP) and the submission of a Notice of Intent (NOI). Once the construction is complete the applicant must submit a Notice of Termination (NOT) to end participation in the AZPDES stormwater program. Depending on the project circumstances, ADEQ can issue a waiver for small construction activities.



If construction of the ARFF training facility involves any filling, grading, or dredging of wetland areas, a Clean Water Section 404 permit from the U.S. Army Corp of Engineers (USACE) is required prior to commencement of any construction activity. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into all “Waters of the United States”. The permit is issued by the USACE and must be certified by the ADEQ.

The use of FLH during burning sessions has the potential to contaminate groundwater. ADEQ requires an Aquifer Protection Permit (APP) if effluent is discharged “either directly to an aquifer or to the land surface or the vadose zone (the area between an aquifer and the land surface) in such a manner that there is a reasonable probability that the pollutant will reach an aquifer,” such as a surface impoundment, pit, pond or lagoon.

The use of aqueous film forming foam (AFFF) during fire suppression could impact groundwater and surface water if released into the environment. AFFF wastewater exhibits high levels of organic loading and can be toxic to aquatic and terrestrial organisms. Table 3.02 shows characteristic levels of AFFF Fire Suppression Wastewater. Due to the organic loading of the wastewater, municipal systems may limit concentrations of AFFF in wastewater. Water should be collected and treated prior to release into sewer or navigable waters.

Table 3.02
Characteristics of AFFF Fire Suppression Wastewater

Parameter	Units	Median	Min	Max	Number of samples Analyzed	Number of Detects
BOD	mg/L	1900	15	11000	3	3
COD	mg/L	3800	76	860000	3	3
Cyanide, Total	mg/L	.005	0.005	0.005	2	1
Oil & Grease	mg/L	55.2	55.2	55.2	1	1
TPH	mg/L	0.031	0.01	0.512	2	2
TSS	mg/L	49	6.5	92	2	2
Cadmium	mg/L	0.0091	0.0091	0.0091	2	1
Chromium	mg/L	0.011	0.011	0.011	2	1
Copper	mg/L	0.031	0.031	0.031	2	1
Lead	mg/L	0.0094	0.0094	0.0094	2	1
Zinc	mg/L	0.098	0.098	0.098	2	1
Bis (2-ethylhexyl) phthalate	µg/L	465	10	920	3	2
Phenols	µg/L	99	18	180	2	2
Benzene	µg/L	42.5	42.5	42.5	3	1
Toluene	µg/L	28.7	28.7	28.7	3	1

Source: Department of Defense Handbook Non-domestic Wastewater Control and Pretreatment Design Criteria MIL-HDBK-1005/17 Oct. 30, 1998



3.6 Federal, State, and Local Regulations, Permits or Approvals Required

The following is a list of federal, state, and local actions that could be required as part of the development of a Regional ARFF Training Facility. Please refer to Tables 3.03 and 3.04 for explanations of permit requirements. Further investigation regarding the applicability of these permits to the specific design and construction scenarios of the project is required.

3.6.1 Federal Regulations

- National Environmental Policy Act
- Resource Conservation and Recovery Act (RCRA)
- Underground Storage Tank (UST) Permit
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Toxic Substances Control Act (TSCA)
- Clean Air Act (CAA), if minimum levels not needed to demonstrate conformity
- Clean Water Act, Section 404 Permit – may be required, if dredging or fill material into waters would be associated with construction of the proposed project; the USACE regulates activities of discharge of dredged or fill material into waters of the United States.
- Department of Transportation Act of 1966, section 4(f)- prohibits the taking of park land unless there is no prudent alternative
- Farmland Protection Policy ACT – regulates federal action where there is a potential to convert farmland to non-agricultural uses
- Endangered Species Act of 1973
- Fish and Wildlife Coordination Act
- Executive Order 11988, Floodway Management
- Historic and Cultural Preservation Acts
- Wild and Scenic Rivers Act
- Safe Drinking Water Act

3.6.2 Arizona State Permits, Regulations and Approvals

- The following Arizona State Permits and Approvals may be required:
- Arizona Pollutant Discharge Elimination System (AZPDES) - discharge permit and stormwater permit
- ADEQ Section 404 Certification
- ADEQ Aquifer Protection Permit (APP)
- ADEQ Open Burn Permit
- ADEQ Reclaimed Water Permit



3.6.3 Local Permits, Regulation and Approvals

- Maricopa, Pinal, and Pima Counties have their own specific air quality programs for emissions regulations.
- Local Fire Fighting Authorities



**Table 3.03
Federal Regulations, Permits, Approvals Required**

Regulation	Agency	Task/Permit	Description	Impact on ARFF Training Facility
National Environmental Policy Act of 1969 (NEPA)	Federal Aviation Agency (FAA)		Federal action subject to environmental review.	Subject to Environmental Review
Airport and Airway Improvement Act	FAA	Certification	Certification of compliance with applicable environmental standards is required by the appropriate state official prior to FAA approval.	Subject to Environmental Review
Clean Water Act	Army Corp of Engineers (ACOE)	ACOE Section 404 Dredge & Fill Permit	Permit required for discharge of dredged or fill material into waters of the United States	Can be avoided or minimized by the size and location of facility
Clean Water Act	Arizona Department of Environmental Quality (ADEQ)	Section 402 National Pollution Discharge Elimination System (NPDES) Permit	Permit required for point-source discharges into navigable water. State of Arizona has authority to operate program and issue permits. See AZPDES under State regulations.	If effluent is discharge into navigable waters, permit is required
Clean Water Act	ADEQ	Section 401 Water Quality Certification	FAA required to obtain a Water Quality Certification from the State for activities requiring federal permits which may result in discharge into navigable waters (part of the Uniform Procedures Act)	If effluent is discharge into navigable waters, certification is required
Clean Water Act	ADEQ	Section 403 Pretreatment Program	Discharge of effluent may not interfere with the operations of POTWs. Controlled by (1) national general and specific discharge prohibitions, (2) national categorical standards, (3) local POTW limits.	May limit AFFF use (e.g. Norfolk Virginia recent reduction use of AFFF)
Wild and Scenic Rivers Act	Department of Interior (DOI)	DOI Consultation	DOI notified, if project could affect a National Inventory River	Can be avoided or minimized by the size and location of facility



Regulation	Agency	Task/Permit	Description	Impact on ARFF Training Facility
Safe Drinking Water Act	Environmental protection Agency (EPA)	EPA Consultation	EPA regional office consultation if there is any potential contamination of aquifer	None expected
Fish and Wildlife Coordination Act of 1980	EPA	Consultation with Fish and Wildlife Service (FWS)	Consultation is required if there is any potential impact to designated water bodies	Can be avoided or minimized by the size and location of facility
Clean Air Act (CAA)	EPA	Conformity determination is not required if project's emission levels fall below the annual threshold levels.	Established air quality standards. Federal action conformity to Federal or State Implementation Plans.	Subject to emission level review
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)	EPA		Regulates clean up of hazardous material released into the environment.	None expected unless spill or leak of hazardous substance occurs
Resource Conservation and Recovery Act (RCRA)	EPA	Hazardous Waste Permit Program	Permits for treating, storing and disposing of hazardous waste	None expected
Department of Transportation Act of 1966, section 4(f)	DOT	4(f) Assessment	Required for any federally funded transportation project that uses property from a publicly owned park, recreation area, wildlife and waterfowl; or land from an historic site or National, State, or local significance as determined by the officials with jurisdiction over the park, recreation areas, refuge, or site.	Can be avoided or minimized by the size and location of facility
Farmland Protection Policy Act	Natural Resource Conservation Service (NRCS)	NRCS Consultation	Required when there is a potential to convert farmland to non-agricultural uses.	Can be avoided or minimized by the size and location of facility
Endangered Species Act of 1973	Fish and Wildlife Service (FWS)	Consultation with FWS and State wildlife agencies	Prevents federal actions from affecting endangered species or their habitat.	Can be avoided or minimized by the size and location of facility



Regulation	Agency	Task/Permit	Description	Impact on ARFF Training Facility
Executive Order 11988, Floodplain Management	Fish and Wildlife Service (FWS)	Consultation with State and local agencies	Directs DOT projects to minimize impacts to floodplain areas.	Can be avoided or minimized by the size and location of facility
Laws Governing National Historic and Archeological Resources	National Park Service, State Historic Preservation Officer (SHIPO)	Consultation with SHPO	Preserve historic and archeological resources	Can be avoided or minimized by the size and location of facility
Occupational Safety and Health Act	Occupational Safety and Health Administration (OSHA)	Material Safety Data Sheets	Safety management practices in place to deal with accidental release of hazardous chemicals	Required for chemical compounds used on site

Table 3.04
Arizona State Permits, Regulations and Approvals

Regulation	Agency	Task/Permit	Description	Impact on ARFF Training Facility
Arizona Administrative Code (AAC) Title 18. Chapter 2. Article 6. Emissions From Existing and New Nonpoint Sources	State, County, Region	Normal Open Burn Permit	Permit sets restrictions on time and manner of burning. Follows the Arizona Guidelines for Open Burning.	Permit is required
AAC Title 18. Chapter 9. Article 2 Aquifer Protection Permit	ADEQ	Aquifer Protection Permit	Permit is required for point source discharges into navigable waters, and for surface impoundments, pits, ponds, and lagoons	Permit may be required, dependent on design specifications
AAC Title 18. Chapter 9. Article 9 Arizona Pollutant Discharge Elimination System	ADEQ	AZPDES Construction General Permit	Permit required for construction sites equal to or greater than five acres.	Permit is required



Regulation	Agency	Task/Permit	Description	Impact on ARFF Training Facility
AAC Title 18. Chapter 9. Article 7 Reuse of Reclaimed Water	ADEQ	Reclaimed Water Permit	Permit required for the application of reclaimed wastewater	None expected
AAC Title 18. Chapter 12 Under Ground Storage Tanks	ADEQ	Construction Permit for Installation	Regulates the installation and maintenance of UST	Permit is required
AAC Title 12. Chapter 15. Article 8 Well Construction and Licensing of Well Drillers	Arizona Department of Water Resources (ADWR)	Review of standards	Well construction subject to the Ground Water Management Code	None expected
Local Permits, Regulations and Approvals				
Maricopa County Air Pollution Control Rules and Regulations	Maricopa County Air Quality Division	Firefighting training exempt from open burn permit requirement	Monitors ambient air quality and ensures compliance of NAAQS	Permit not required
Pima County Codes, Title 17	Pima County Department of Environmental Quality	Firefighting training exempt from open burn permit requirement	Monitors ambient air quality and ensures compliance of NAAQS	Permit not required
Pinal County Air Quality Control District Code of Regulations, Article 8	Pinal County Air Quality Control District	Firefighting training exempt from open burn permit requirement	Identifies permit requirements and guidelines for open burns	Permit not required, notification prior to burning required